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Filed : March 13, 2000

REMARKS

Claims 1-5, 14-20, 23, and 25-43 were pending in the application. By this paper, Applicant has cancelled Claims 33, 34, and 36 without prejudice, and amended Claims 1, 14, 17, 23 and 41. Accordingly, Claims 1-5, 14-20, 23, 25-32, 35, and 37-43 are presented herein for examination.

Applicant thanks the Examiner for the very thorough and detailed analysis and Office Action. After careful evaluation thereof, Applicant provides the following remarks.

10 *Objection*

Per Par. 3 of the Office Action, Claim 17 has been amended to clarify the claimed invention as requested by the Examiner. Applicant submits that this amendment overcomes the objection.

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Rejections Under 35 U.S.C. §102

Claims 1-5, 14-18, 20, 23, 25, 29, and 33-43 were rejected under 35 U.S.C. §102 as being anticipated by U.S. 4,755,966 to Lee et al. ("Lee"); see Pars. 8-32 of the Office Action.

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Claims 1, 14, 17, and 23 – Independent Claims 1, 14, 17, and 23 as amended now include limitations relating to the recited instruction having at least one user-defined mode associated therewith. Here, "user-defined" refers to the ability of the user/programmer to define what the mode is (i.e., what functionality the setting of the mode bit(s) performs within the processor), not merely just the ability for the user/programmer to change the values of these bits. The Examiner's attention is directed to, e.g., Table 1 and page 11, lines 18-19 of the specification as filed, wherein it is stated:

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"The fourth mode ("11") of Table 1 may be used for other jump mode or non-jump mode functions as desired, thereby affording the programmer even further flexibility" {emphasis added}

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Lee in no way teaches allowing the user/programmer to define at least one additional mode; the options of Lee are fixed, as shown in the Examiner's table of page 15 of the Office Action. The user/programmer of Lee can merely configure; he/she cannot define as in Applicant's claimed invention.

Based on the foregoing, Applicant respectfully submits that independent Claims 1, 14, 17, 20, and 23 as amended herein define patentable subject matter, and are in condition for allowance. Furthermore, the dependent claims associated with the foregoing independent Claims are also allowable.

Claim 20 – Applicant respectfully traverses the Examiner's rejection of independent Claim 20 on substantive grounds. Specifically, on page 10 of the Office Action, element (iv) discussion, the Examiner cites a scenario wherein if (i) the delay slot instruction is nullified based on displacement and nullify bits, and (ii) the predicted target is incorrect, both instructions will need to be cancelled, resulting in a two-cycle stall. Applicant respectfully submits that this is merely one scenario of operation of the invention of Lee, yet not a defined jump delay slot mode as recited in Applicant's Claim 20. With the same displacement and nullify bit selection as in the Examiner's scenario, different results may be obtained if the cited contingencies (e.g., predicted target incorrect) are not met. Contrast Applicant's invention, where the recited functionality comprises a dedicated mode. Applicant submits that the mere fact that a scenario of operation can be constructed for the Lee invention wherein a similar result to that provided by Applicant's invention is produced is not equivalent to the dedicated assignment of a separate mode for this functionality, as in Applicant's claimed invention. The Examiner's scenario is but one of a number of possible outcomes; Applicant's dedicated mode is substantially deterministic. The Examiner cannot say in hindsight that Lee teaches a dedicated mode; rather, Lee simply "stumbles" on a similar result in one scenario of operation, with no mention of this particular construct that the Examiner cites.

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Claims 35 and 37-40 – Applicant respectfully traverses the Examiner’s rejection of independent Claims 35 and 37- 40 on substantive grounds.

Specifically, regarding Claim 39, Applicant traverses in two distinct aspects:

(i) The Examiner’s analysis seems to gloss over the subtle yet important distinction
5 between the terms “user-configurable” and “user-defined” as recited in Claim 39. Claim 39 requires, *inter alia*, “...at least one extension instruction comprising a branch instruction having at least one user-defined mode and a plurality of other modes...” {emphasis added} As described previously herein, “user-defined” refers to the ability of the user/programmer to define what the mode is (i.e., what functionality the setting of the mode bit(s) performs within the
10 processor), not merely just the ability for the user/programmer to change the values of these bits. Lee in no way teaches allowing the user/programmer to define at least one additional mode; the options of Lee are fixed, as shown in the Examiner’s table of page 15 of the Office Action. The user/programmer of Lee can merely configure; he/she cannot define as in Applicant’s claimed invention.

15 See also Claim 35, wherein similar limitations are recited.

(ii) Claim 39 as pending recites “[a]n extensible pipelined digital processor having an instruction set, said processor comprising: a basecase processor core configuration including a base instruction set; and at least one user-configured extension instruction...” Applicant
20 respectfully submits that the Examiner is both a) misinterpreting the terms “extensible/extension” and “basecase”, and b) reading Lee to include features not explicitly or even inherently present in the disclosure. Applicant notes that its concepts of extensions and extensibility are clearly set forth in Applicant’s co-pending U.S. Patent Application Serial No. 09/418,663 entitled “Method And Apparatus For Managing The Configuration And
25 Functionality Of A Semiconductor Design” filed October 14, 1999, which was incorporated by reference in its entirety into the present application on p. 14 of the disclosure as filed. Applicant submits that the terms “extensible”, “extension instruction”, and “basecase” are generally well known in the configurable processor field, and have specific connotations. The Examiner

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asserts (on p. 19 of the Office Action, Par. 28) that “*extension instructions can be interpreted as the branch instructions which utilize the extra bits within the instruction word*”, and the basecase instructions “*could be interpreted as the regular instructions that can be executed on the processor...*” {emphasis added}. Applicant submits that this is a purely artificial definition
5 constructed by the Examiner, and is discordant with the industry-accepted definitions of these terms. In Applicant’s invention, the “basecase” configuration and instruction set is in effect a largely immutable portion of the core architecture and ISA. The extensions afford the user/designer the ability to add customized feature or functionality to the basecase core. Extensions (instructions) can generally be of any form, including the Examiner’s “regular”
10 instructions as well as the cited branch instructions. Hence, the Examiner’s assertion that Lee teaches an “extensible” core with “at least one...extension instruction” is inaccurate. Lee in no way teaches or suggests differentiation between portions of the instruction set, let alone an extensible core configuration.

Applicant further respectfully submits that a reference may only anticipate if it explicitly teaches (or inherently contains) the claimed subject matter.¹ The Examiner is erroneously using
15 hindsight and importing teachings into Lee which are not there; nowhere in Lee is “extensibility” or the partitioning into basecase and extension sets even remotely taught or suggested. The Examiner’s use of the terms “can and could” above further lends support to Applicant’s contention; the Examiner is in effect “bootstrapping” onto Lee to ascribe teachings
20 which are not present in any manner.

Accordingly, Applicant submits that Claim 39 is neither anticipated nor suggested by Lee or any other of the cited art.

Applicant also submits that independent Claim 40 is also neither anticipated nor suggested by Lee or any other of the cited art. Claim 40 recites, *inter alia*, an extensible
25 pipelined digital processor having basecase and extension instruction sets, at least one instruction within the basecase set comprising a branch instruction. Here, the branch instruction

¹ *In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997); See also *Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 631 (Fed. Cir. 1987).

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is recited as being within the basecase IS, which is contrary to the Examiner's assertion with respect to Claim 39 above that the branch instruction is an extension instruction. Stated differently, the Examiner must take an inconsistent position with respect to Lee's teachings to support his arguments against both Claims 39 and 40. This aside, Lee in no way teaches or
5 suggests extensibility either, as previously discussed.

For similar reasons as those previously set forth, Applicant submits that Claims 37 and 38 also distinguish over the prior art and are in condition for allowance.

Claim 41 – Applicant has by this paper amended independent Claim 41 to include
10 limitations wherein the recited branch instruction is further configured to permit the definition of at least one branch or non-branch mode by a user using the at least first, second, and third bits. As previously discussed with respect to Claim 39 above (see argument (i)), Applicant submits that the recital of a user-defined branch or non-branch mode in Claim 41 as amended clearly distinguishes over the cited art, since the latter (including Lee) does not teach or suggest
15 user definition of new or additional modes.

Rejections Under 35 U.S.C. §103

Dependent Claims 19, 26-28, and 30-32 stand rejected under 35 U.S.C. §103 over various art. Based in the foregoing discussions of the independent claims from which the
20 foregoing Claims depend, Applicant submits that the §103 rejections are rendered moot, since a dependent claim cannot be obvious under the law when it depends from a non-obvious/anticipated claim.

Summary

25 In sum, Applicant respectfully submits that all pending independent claims now define patentable subject matter and are in condition for allowance. Furthermore, all claims depending directly or indirectly therefrom are also allowable. Accordingly, Applicant requests that the case be passed to issuance.

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Applicant hereby specifically reserves the right to prosecute claims of different or broader scope, including those cancelled without prejudice herein, in a continuation or divisional application, as well as its rights of appeal.

Applicant notes that any cancellations, or additions made herein are made solely for the purposes of more clearly and particularly describing and claiming the invention, and not for purposes of overcoming art or for reasons relating to patentability unless otherwise stated. The Examiner should infer no (i) adoption of a position with respect to patentability, (ii) change in the Applicant's position with respect to any claim or subject matter of the invention, or (iii) acquiescence in any way to any position taken by the Examiner, based on such cancellations or additions.

If the Examiner has any questions or comments which may be resolved over the telephone, he is requested to call the undersigned at (858) 675-1670.

Respectfully submitted,

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